of more external fluid supplies.

The apparatus also preferably includes a plurality of weld rings disposed on the central hubs, the weld rings being constructed and arranged to permit attachment of processing chambers and expressor chambers, which may be alternately arranged.

In certain embodiments of the invention, the processing chambers and expressor chambers are substantially the same shape, preferably a substantially circular shape, and most preferably having substantially the same diameter. In some embodiments the processing chambers and expressor chambers are constructed from two sheets of flexible material, the two sheets of material sealed at an outer circumference and an inner circumference, although other constructions are also possible and permissible. Preferably, the inner circumference is substantially adjacent the axial opening.

The apparatus in other embodiment also includes a terminal central hub, disposed at a terminus of the plurality of axially aligned alternating processing chambers and expressor chambers. Preferably, the terminal central hub constructed and arranged to terminate fluid flow through the central hub fluid passages.

In additional embodiments, a fluid entry hub is disposed at a fluid entry point of the plurality of axially aligned alternating processing chambers and expressor chambers, and is constructed and arranged to serve as an interface for fluid communication between the plurality of axially aligned alternating processing chambers and expressor chambers and a fluid pathway external to the continuous flow centrifuge. Preferably, the fluid pathway is a multi-lumen tube.

According to another aspect of the invention, an improved continuous flow centrifuge is provided, the improvement including a plurality of axially aligned alternating processing chambers and expressor chambers disposed in a centrifuge bowl, each chamber comprising an axial opening, in a fixed arrangement. In certain preferred embodiments, the plurality of axially aligned alternating chambers is disposed or arranged to provide a horizontal axis of rotation. In other preferred embodiments, each of the plurality of axially aligned alternating

chambers is in separate fluid communication through the axial openings with at least one fluid supply container.

According to a further aspect of the invention, a fluid connector for fluid communication between a fluid supply and a plurality of axially aligned centrifuge chambers is provided. The fluid connector includes a multi-lumen disc disposed in an axial opening of the plurality of axially aligned centrifuge chambers, constructed and arranged for fluid communication with a fluid supply and comprising a number of lumens equal or greater than the plurality of axially aligned centrifuge chambers. The fluid connector includes in preferred embodiments at least one lumen constructed and arranged for fluid communication with each of the plurality of axially aligned chambers, thereby forming a plurality of unique fluid communication passages between each of the plurality of axially aligned chambers and the fluid supply. In certain embodiments, the circumference of the disc is substantially circular. In other embodiments, the multi-lumen disc has a first substantially nonplanar surface that defines a shape complementary with a second substantially nonplanar surface of another fluid connector. As above, it is especially preferred that two distinct fluid connectors having shapes that are not self-complementary are provided.

According to still another aspect of the invention, methods for independently and simultaneously processing a plurality of samples in a centrifugal device are provided. The methods include adding a plurality of samples to a plurality of processing chambers of a multiple processing chamber set, centrifuging the plurality of samples. The methods optionally include expressing a plurality of supernatants, the supernatants representing a first portion of the samples formed by the centrifugation of the plurality of samples, and also optionally include expressing a plurality of pellets, the pellets representing a second portion of the samples formed by the centrifugation of the plurality of samples.

According to still another aspect of the invention, a method for independently and simultaneously processing a plurality of samples in a centrifugal device is provided. The device comprises a multiple sample processing apparatus for a continuous flow centrifuge, including a plurality of axially aligned processing chambers and expressor chambers, each chamber comprising an axial opening, in a fixed arrangement, and a plurality of central hubs

disposed in the axial openings. The central hubs are constructed and arranged to define passages for fluid communication between the chambers and a fluid supply. The method includes adding a plurality of samples to the plurality of processing chambers, centrifuging the plurality of samples, optionally expressing a plurality of supernatants, including a first portion of the samples formed by the centrifugation of the plurality of samples, and optionally expressing a plurality of pellets comprising a second portion of the samples formed by the centrifugation of the plurality of samples. The supernatants and the pellets are expressed by filling the expressor bags with an expressor fluid.

In certain embodiments, the methods include adding one or more processing fluids to the plurality of samples or pellets. In other embodiments, a portion of one or more of the plurality of samples is expressed independently from the remaining samples. In further embodiments, process fluids are added to one or more of the plurality of samples independently from the remaining samples.

These and other aspects of the invention will be described in connection with the drawings and the detailed description below.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 depicts an expressor bag having an axial opening.

Fig. 2 depicts three views of an expressor central hub.

Fig. 3 depicts the assembly of an expressor bag by joining two weld rings to an expressor bag and central hub.

Fig. 4 depicts a perspective view of the joining of one weld ring to an expressor bag and central hub.

Fig. 5 depicts a processing bag having an axial opening.

Fig. 6 depicts three views of a processing central hub.